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TECH CENTER 1600/2900

# DeCypher Results for: ClustalW Multiple Alignment

View dendrogram

Smart II oligo -||-5'UTR

hDAP10c CTAATACGACTCACTATAGGGCAAGCAGTGGTAACAACGCAGAGTACGCGGGGAGTCGGG  
mDAP10c\_coding -----

hDAP10c CCGCGGCGACGGCGGCAGGAGCGCGTCCCGGCGCCGCCTCGGGCTCCGCTCGGCTCGGGG  
mDAP10c\_coding -----

hDAP10c GCTGCTTCGGGAGGAGGAGAGCCAAGGGAGGCGCCAGGCCCGGGCCGGGCGCATGGCT  
mDAP10c\_coding -----

hDAP10c -||-coding  
TAGGGACGCTCCCGGCCCGCCGAGCCCCAGCATGGGGAAACTTCACTCCAAGCCGGCCGC  
mDAP10c\_coding -----ATGGGGAAACTTCACTCGAAGCCGGCCGC  
\*\*\*\*\*

hDAP10c CGTGTGCAAGCGCAGGGAGAGCCCAGGAGGTGACAGCTTCGCCGTGAGCGCTGCCTGGGC  
mDAP10c\_coding CGTGTGCAAGCGCAGGGAGAGCCCAGGAGGTGACAGCTTGTCTGTAAGCGCTGCTTGGGC  
\*\*\*\*\*

hDAP10c TCGGAAGGGCATCGAGGAGTGGATCGGGAGACAGCGCTGCCCCGGGCGGTGTCTCGGGACC  
mDAP10c\_coding AAGGAAAGGCATCGAGGAGTGGATCGGGAGGCAGCGCTGTCCAGGCAGCGTCTCAGGACC  
\*\*\*\*

hDAP10c CCGACAGCTGCGGTTGGCGGGCACCATAGGCCGAAGCACCCGGGAGCTCGTGGGCGACGT  
mDAP10c\_coding CCGTCAGCTGAGATTGGCAGGCACCTGTTGGTCGAGGCACTCGGGAACCTCGTGGGTGACAC  
\*\*\*

hDAP10c GTTGAGAGACACGCTCAGCGAGGAAGAGGAGGACGACTTTCGGCTGGAAGTGGCCCTGCC  
mDAP10c\_coding TTCTAGAGAGGCTCTCGGTGAGGAGGACGAGGACGACTTCCCCCTAGAAGTGGCCCTGCC  
\* \*\*\*\*

hDAP10c TCCTGAGAAGACTGACGGGCTGGGCAGCGGAGATGAGAAGAAGATGGAGAGAGTGAGCGA  
mDAP10c\_coding GCCTGAGAAGATCGACAGCCTAGGTAGTGGAGATGAGAAGAGAATGGAGAGACTGAGCGA  
\*\*\*\*\*

hDAP10c ACCCTGCCCAGGCTCCAAGAAGCAGCTGAAGTTTGAAGAGCTCCAGTGCGACGTGTCCAT  
mDAP10c\_coding ACCTGGCCAGGCCTCCAAGAAGCAGCTCAAGTTTGAAGAGCTACAGTGTGATGTCTCTGT  
\*\*\*

hDAP10c GGAGGAGGACAGCCGGCAGGAGTGGACCTTCAACCCTGTATGACTTTGACAACAACGGCAA  
mDAP10c\_coding GGAGGAGGACAGCCGGCAAGAGTGGACTTCACTCTATATGACTTCGACAACAATGGCAA  
\*\*\*\*\*

FIG. 1-1



**hDAP10c** GGTCAACCGAGAGGACATCACCAGCTTGCTGCACACCATCTATGAGGTGGTGGACTCCTC  
**mDAP10c\_coding** AGTGACCCGTGAGGACATTACCAGCTTGCTGCATACCATCTATGAAGTGGTTGACTCCTC  
\* \* \* \* \*

**hDAP10c** TGTCAACCACTCCCCAACATCCAGCAAGATGCTGCGGGTAAAGCTCACCGTGGCCCCCGA  
**mDAP10c\_coding** TGTGAACCATCCCCACATCAAGCAAGACACTGCGGGTGAAGCTCACCGTGGCTCCTGA  
\* \* \* \* \*

**hDAP10c** TGGCAGCCAGAGCAAGAGGAGCGTCCTTGTCAATCAGGCTGACCTGCAGAGCGCAAGGCC  
**mDAP10c\_coding** CGGGAGCCAGAGTAAGAGGAGCGTCCTTTTCAACCATAACCGATCTGCAGAGCACAAGGCC  
\* \* \* \* \*

**hDAP10c** CCGAGCAGAGACCAAGCCCACTGAGGACCTGCGGAGCTGGGAGAAGAAGCAGCGAGCCCC  
**mDAP10c\_coding** CCGAGCAGACACCAAACCCGCTGAGGAGCTGCGTGGCTGGGAGAAGAAGCAGCGAGCCCC  
\* \* \* \* \*

**hDAP10c** GCTCAGGTTCCAGGGTGACAGCCGCTGGAGCAGTCTGGCTGCTACCACCATTTGCGTAGA  
**mDAP10c\_coding** ACTCAGGTTCCAGGGTGACAGCCACCTGGAGCAGCCAGACTGCTACCACCATTTGCGTGA  
\* \* \* \* \*

**hDAP10c** TGAGAACATCGAGAGGAGAAACCACTACTTAGATCTCGCCGGGATAGAAAACCTACACGTC  
**mDAP10c\_coding** TGAGAACATTGAGAGGAGAAACCACTACCTAGACCTGGCGGGGATAGAGAACCTACACGTC  
\* \* \* \* \*

**hDAP10c** CCAATTTGGGCCTGGCTCCCCCTTCGTTGGGCCAGAAAGTCAGAACTGCCCCCGGCACCTC  
**mDAP10c\_coding** TCAGTTTGGACCGGGATCCCCCTTCGTTGGGCCAGAAAGTCAGAGCTGCCCCCTCGAATCTC  
\* \* \* \* \*

**hDAP10c** CAATCCCCTCGATCTCGCTCCCATGAGCCGGAAGCCATCCACATCCCACACCGAAAGCC  
**mDAP10c\_coding** CAACCCCTCGCTCTCGCTCCACGAGCCAGAAAGCTGCCACATCCCACACCGGAGGCC  
\* \* \* \* \*

**hDAP10c** CCAAGGCGTGGACCCGGCCTCCTTCCACTTCCTTGACACCCCAATCGCCAAGGTCTCAGA  
**mDAP10c\_coding** CCAAGGTGTGGACCCAGGCTCCTTCCACTTCCTTGACACCCCAATTTGCCAAGGCATCAGA  
\* \* \* \* \*

**hDAP10c** GCTCCAGCAACGGCTCCGGGGCACCCAGGACGGGAGCAAGCACTTTGTGAGGTCCCCCAA  
**mDAP10c\_coding** GCTCCAGCAACGGCTCCGGGGCACTCAGGATGGGAGCAAGCACTTTGTGAGGTCCCCCAA  
\* \* \* \* \*

**hDAP10c** GGCCCAGGGCAAGAGTGTGGGTGTGGGCCACGTGGCCAGAGGGGCAAGAAACAAGCCCCC  
**mDAP10c\_coding** GGCCCAGGGCAAGAACATGGGTATGGGCCACGGGGCCAGAGGTGCAAGAAGCAAGCCTCC  
\* \* \* \* \*

**hDAP10c** TCTGGGACCCGCCATCCCTGCGGTGTCCCCCTCCGCCACCTGGCTGCCAGCCCGGCCCT  
**mDAP10c\_coding** ACTGGTACCCACCACCCATACTGTCTCCCCCTCTGCCCATCTGGCCACCAGCCAGCCCT  
\* \* \* \* \*

**hDAP10c** CCTCCCCCTCCCTAGCCCCCTCGGGGCACAAGAAGCACAAGCACCGAGCCAAGGAGAGCCA  
**mDAP10c\_coding** TCTCCCCACCCCTGGCACCCCTGGGGGCACAAGAACACAAGCATCGAGCCAAGGAGAGCCA

FIG. 1-2



\*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\*

hDAP10c GCAGGGCTGCCGGGCTGCAGGCACCACTGGCCTCAGGTGGCCCT--GTCCTGGGGCG  
mDAP10c\_coding GCGGAGCTGCCGGGCTGCAGGGCCCCCTGGCTGCAGGAGGCTCCACCGTCATGGGGCG  
\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\*

hDAP10c GGAGCACCTGCGGGAGCTGCCCCGCTGGTGGTGTATGAGAGCCAGGCCGGCAGCCGGT  
mDAP10c\_coding GGAGCAGGTGAGGGAGCTGCCCTGCCGTGGTGGTGTACGAGAGCCAGGCTGGGCAGGCCGT  
\*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\*

hDAP10c CCAGAGACATGAGCACCAACCACCACCATGAACATCACCACCATACCACCATTCCTACCA  
mDAP10c\_coding CCAGAGACACGAACACCATCACCACCACGAACATCACCACCATATCACCACATTCCTATCA  
\*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\* \*\* \* \*\*\*\*\*

-||-3'UTR  
hDAP10c GACATAGAGCCCCCTCCCCAGGGCCCCACCCCTGCCATATGAAGACCCACCCCGACACC  
mDAP10c\_coding GCCCTAG-----  
\* \* \*\*\*\*\*

hDAP10c ACAAGGCATTATTCTATTAATTATTGTTATTATGATGATTATTGTTATTAATAATTA  
mDAP10c\_coding -----

hDAP10c TTGTTACTCCACTAAATTTAGCTAGCCTACATGTAGAAGATCTATGGAACACAGAACT  
mDAP10c\_coding -----

-|  
hDAP10c AAACCTTTTATTATATGTTAAAAAATAAAAAAAAAAAAAA  
mDAP10c\_coding -----

FIG. 1-3



## DeCypher Results for: ClustalW Multiple Alignment

View dendrogram

hDAP10cFL.pep	MGKLHSPAAVCKRRESPEGDSFAVSAAWARKGIEEWIGRQRCPGGVSGPRQLRLAGTIG
mDAP10c.pep	MGKLHSPAAVCKRRESPEGDSFAVSAAWARKGIEEWIGRQRCPGSVSGPRQLRLAGTVG
	*****.*
hDAP10cFL.pep	RSTRELVGDLRDTLSEEEEDDFRLEVALPPEKTDGLGSGDEKKMERVSEPCPGSKKQLK
mDAP10c.pep	RGTRVLGDTSRREALGEEEDDFLEVALPPEKIDSLGSGDEKRMERLSEPGQASKKQLK
	*.*****.*:.*:*****.*.*****.*:***.*.*****
hDAP10cFL.pep	FEELQCDVSMEEDSRQEWFTFTLYDFDNGKVTREDITSLLHTIYEVVDSSVNHSPSSKM
mDAP10c.pep	FEELQCDVSVEEDSRQEWFTFTLYDFDNGKVTREDITSLLHTIYEVVDSSVNHSPSSKT
	*****.*:*****.*
hDAP10cFL.pep	LRVKLTVAPDGSQSKRSVLVNQADLQSARPRAETKPTEDLRSWEKKQRAPLRFQGDSRL
mDAP10c.pep	LRVKLTVAPDGSQSKRSVLFNHTDLQSTRPRADTKPAEELRGWEKKQRAPLRFQGDHLE
	*****.*:.*:*****.*:***.*:***.*.*****.*:***.*
hDAP10cFL.pep	QSGCYHHCVDENIERNHYLDLAGIENYTSQFGPGSPSVAQKSELPPRTSNPTRSRSH
mDAP10c.pep	QPDYHHCVDENIERNHYLDLAGIENYTSQFGPGSPSVAQKSELPPRISNPTRSRSH
	*.*****.*
hDAP10cFL.pep	EAIHIPHRKPQGVDPASFHFLDTPIAKVSELQQRLRGTQDGSKHFVRSPPKAQGKSVGVGH
mDAP10c.pep	EAAHIPHRRPQGVDPGSHLLDTPFKASELQQRLRGTQDGSKHFVRSPPKAQGNMGMGH
	**.*:*****.*:***.*:***.*:***.*.*****.*:***.*
hDAP10cFL.pep	VARGARNKPPLGPAIPAVSPSAHLAASPALLPSLAPLGHKKKHKHRAKESQQGCRGLQAPL
mDAP10c.pep	GARGARSKPPLVPTHTVSPSAHLATSPALLPTLAPLGHKKKHKHRAKESQASCRGLQGPL
	*****.*:.*:*****.*:*****.*:*****.*.*****.*
hDAP10cFL.pep	ASGG-PVLGREHLRELPAVVYESQAGQPVQRHEHHHHHEHHHHYHHFYQT
mDAP10c.pep	AAGGSTVMGREQVRELPAVVYESQAGQAVQRHEHHHHHEHHHHYHHFYQP
	*:***.*:***.*:*****.*:*****.*.*****.*

FIG. 2



GAATTCGCCCTTCTAATACGACTCACTATAGGGCAAGCAGTGGTAACAACGCAGAGTACGCGGGGAGTCGG  
GCCGCGGCGACGGCGGCAGGAGCGCGTCCC GGCGCCGCTCGGGCTCCGCTCGGCTCGGGGGCTGCTTCGG  
GAGGAGGAGAGCCAAGGGAGGCGCCAGGCCCGCGGGCCGGGCGCATGGCTTAGGGACGCTCCCGGCCGCCG  
CAGCCCCAGCATGGGGAACTTCACTCCAAGCCGGCCGCGCTGTGCAAGCGCAGGGAGAGCCCCGAAGGTG  
ACAGCTTCGCCGTGAGCGCTGCCCTGGGCTCGGAAGGGCATCGAGGAGTGGATCGGGAGACAGCGCTGCCCG  
GGCGGTGTCTCGGGACCCCCGACAGCTGCGGTTGGCGGGCACCATAGGCCGAAGCACC CGGGAGCTCGTGGG  
CGACGTGTTGAGAGACACGCTCAGCGAGGAAGAGGAGGACGACTTTCGGCTGGAAGTGGCCCTGCCCTCCTG  
AGAAGACTGACGGGCTGGGCAGCGGAGATGAGAAGAAGATGGAGAGAGTGAGCGAACCCTGCCCAGGCTCC  
AAGAAGCAGCTGAAGTTTGAAGAGCTCCAGTGCGACGTGTCCATGGAGGAGGACAGCCGGCAGGAGTGGAC  
CTTCACCCCTGTATGACTTTGACAACAACGGCAAGGTACCCGAGAGGACATCACCAGCTTGCTGCACACCA  
TCTATGAGGTGGTGGACTCCTCTGTCAACCACTCCCCAACATCCAGCAAGATGCTGCGGGTAAAGCTCACC  
GTGGCCCCCGATGGCAGCCAGAGCAAGAGGAGCGTCTTGTCAATCAGGCTGACCTGCAGAGCGCAAGGCC  
CCGAGCAGAGACCAAGCCCCTGAGGACCTGCGGAGCTGGGAGAAGAAGCAGCGAGCCCCGCTCAGGTTCC  
AGGGTGACAGCCGCTGGAGCAGTCTGGCTGCTACCACCATTGCGTAGATGAGAACATCGAGAGGAGAAAC  
CACTACTTAGATCTCGCCGGGATAGAAAACCTACACGTCCCAATTTGGGCCTGGCTCCCCCTTCCTGGCCCCA  
GAAGTCAGAACTGCCCCCCCCGCACCTCCAATCCCCTCGATCTCGCTCCCATGAGCCGGAAGCCATCCACA  
TCCCACACCGAAAGCCCCAAGGCGTGGACCCGGCCTCCTTCCACTTCCTTGACACCCCAATCGCCAAGGTC  
TCAGAGCTCCAGCAACGGCTCCGGGGCACCAGGACGGGAGCAAGCACTTTGTGAGGTCCCCCAAGGCCCA  
GGGCAAGAGTGTGGGTGTGGGCCACGTGGCCAGAGGGGCAAGAAACAAGCCCCCTCTGGGACCCGCCATCC  
CTGCGGTGTCCCCCTCCGCCACCTGGCTGCCAGCCGGCCCTCCTCCCCCTCCTTAGCCCCCTCGGGCAG  
AAGAACACCAAGCACCAGCCAAGGAGAGCAGAGGCTGCCGGGGCTGCAGGCACCAAGCCCTCAGG  
TGGCCCTGTCTTGGGGCGGGAGCACCTGCGGGAGCTGCCCCGCTTGGTGGTGTATGAGAGCCAGGCCGGGC  
AGCCGGTCCAGAGACATGAGCACCACCACCACCATGAACATCACCACCATTACCACCCTTCTACCAGACA  
TAGAGCCCCCTCCCCAGGGCCCCACCCTGCCATATGAAGGACCCACCCCGACACCACAAGGCATTATTAT  
TCTATTAATTATTGTTATTATGATGATTATTGTTATTAATAATTATTGTTACTCCACTAATATTTAGCTAG  
CCTACATGTAGAAGATCTATGGAACACAGAACTAACTTTTATTTATATGTTAAAAAAAAAAAAAAAAAAAA  
AAAAAGCGGCCGC

FIG. 3

SEQ. ID. NO.: 6

ATGGGGAACTTCACTCGAAGCCGGCCGCGCTGTGCAAGCGCAGGGAGAGCCCCGAAGGTGACAGCTTTG  
CTGTAAGCGCTGCTTGGGCAAGGAAAGGCATCGAGGAGTGGATCGGGAGGCAGCGCTGTCCAGGCAGCGT  
CTCAGGACCCCGCTCAGCTGAGATTGGCAGGCACTGTTGGTCGAGGCACTCGGGAACCTCGTGGGTGACACT  
TCTAGAGAGGCTCTCGGTGAGGAGGACGAGGACGACTTCCCCCTAGAAGTGGCCCTGCCGCCTGAGAAGA  
TCGACAGCCTAGGTAGTGGAGATGAGAAGAGAAATGGAGAGACTGAGCGAACCTGGCCAGGCCTCCAAGAA  
GCAGCTCAAGTTTGAAGAGCTACAGTGTGATGTCTCTGTGGAGGAGGACAGCCGGCAAGAGTGGACTTTC  
ACTCTATATGACTTCGACAACAATGGCAAAGTGACCCGTGAGGACATTACCAGCTTGCTGCATACCATCT  
ATGAAGTGGTTGACTCCTCTGTGAACATTCCCCCACATCAAGCAAGACACTGCGGGTGAAGCTCACCCT  
GGCTCCTGACGGGAGCCAGAGTAAGAGGAGCGTCTTTTCAACCATACCGATCTGCAGAGCACAAGGCC  
CGAGCAGACACCAACCCGCTGAGGAGCTGCGTGGCTGGGAGAAGAAGCAGCGAGCCCCACTCAGGTTCC  
AGGGTGACAGCCACCTGGAGCAGCCAGACTGCTACCACCATTGCGTGGATGAGAACATTGAGAGGAGAAA  
CCACTACCTAGACCTGGCGGGGATAGAGAACTACACGTCTCAGTTTGGACCGGGATCCCCCTTCGGTGGCC  
CAGAAGTCAGAGCTGCCCCCTCGAATCTCCAACCCCACTCGCTCTCGCTCCCACGAGCCAGAAGCTGCCC  
ACATCCCACACCGGAGGCCCAAGGTGTGGACCCAGGCTCCTTCCACCTCCTTGACACCCCAATTTGCCAA  
GGCATCAGAGCTCCAGCAACGGCTCCGGGGCACTCAGGATGGGAGCAAGCACTTTGTGAGGTCCCCCAAG  
GCCCAGGGCAAGAATATGGGTATGGGCCACGGGGCCAGAGGTGCAAGAAGCAAGCCTCCACTGGTACCCA  
CCACCCATCTGTCTCCCCCTCTGCCCATCTGCCACAGCCAGCCCTTCTCCCCACCTTGGCAGCCCCCT  
GGGGCACAAGAAACAAGCATCGAGCCAAGGAGAGCCAGGCGAGCTGCCGGGGCTGCAGGGCCCCCTG  
GCTGCAGGAGGCTCCACCGTCATGGGGCGGGAGCAGGTGAGGGAGCTGCCCTGCCGTGGTGGTGTACGAGA  
GCCAGGCTGGGCAGGCCGCTCCAGAGACACGAACACCATCACCACCACGAACATCACCACCATTATCACC  
CTTCTATCAGCCCTAG

FIG. 4



MGKLHSPAAVCKRRSEPGDSFAVSAAWARKGIEEWIGRQRCPGVSGPRQLRAGTIGRSTRELVGDL  
RDTLSEEEEDFRLVALPPEKTDGLGSGDEKKMERVSEPCPGSKQLKFEELQCDVSMEEDSRQEWTFLL  
YDFDNGKVTRDITSLHTIYEVVDSSVNHSPSSKMLRVKLTVPDGSQSKRSVLVNQADLQ SAR PRAE  
TKPTEDLRSWEKKQRAPLRFQGDRLQSGCYHHCVDENIERNNHYLDLAGIENYTSQFGPGSPSVAQKSE  
LPRTSNPTRSRSHPEAIIHPRKPPQGVDPASFFHLDTPIAKVSELQQRLRGTDGSKHFFVRSPKAQGKS  
VGGVHARGARNKPLGPAIPAVSPSAHLAASPALPLSLAPLGHKHKKHRAKESQQGCRGLQAPLASGGPV  
LGREHLRELPAVVYESQAGQPVQRHEHHHHHHHHHHFYQT

FIG. 5

SEQ. ID. NO.: 8

MGKLHSPAAVCKRRSEPGDSFAVSAAWARKGIEEWIGRQRCPGVSGPRQLRAGTVGRGTRRELVGDT  
REALGEDEDDFPLEVALPPEKIDSLGSGDEKRMERLSEPGASKQLKFEELQCDVSMEEDSRQEWTFLL  
YDFDNGKVTRDITSLHTIYEVVDSSVNHSPSSKTLRVKLTVPDGSQSKRSVLFNHTDLQSTRPRAD  
TKPAEELRGWEKKQRAPLRFQGDRLQSGCYHHCVDENIERNNHYLDLAGIENYTSQFGPGSPSVAQKSE  
LPRI SNPTRSRSHPEAAHI PHRRPQGVDPGSHLLDTPFAKASELQQRLRGTDGSKHFFVRSPKAQGKN  
MGMGHGARGARSKPPLVPTHTVSPSAHLATSPALLPTLAPLGHKHKKHRAKESQASCRGLQGLAAGGST  
VMGREQVRELPAVVYESQAGQAVQRHEHHHHHHHHHHFYQP

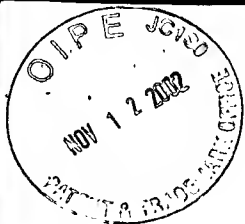
FIG. 6



PUTATIVE PROMOTER:

GAATTCATATGCACATTAAATTCCAGGGAGCCCTCCTCTAGGCTATTTGACCCTAGCTCAAGAAAGGGGGA  
TTAAGAGTCTTACAGGGAGGGATCCAAGGTCAGCATATACAGTTAGTCAGGGACCAGTCTGTCTGTGTCTC  
TCTCTCCATGGGGTTTACTATCATTGCTTTCCCTTAATGGTTCTTACTCCTGCTTCTTCCCTGCTTATTTTT  
CAGCCCACAGCGACCCCAAGAAGCTGCTCCAACCCCTGGGACTATGGAGCTCTACAGCTGTAGAGACCACC  
AGGAAGTGGACTGCAGGCCCCCTGGCCTCTCCATTTCAGATTCTGCAAAGAGATCCTGATGGGTGGGGCCAAT  
GGGTCAGGCATCCAGTCAGCTCTGGCTAAGGGGTGAAGGAGTCAAGGTGTTACCAACGTGGTGGCAGGGGCC  
ACCTTGAAGCTGTGTTCTGTGCCATGGAAGAAGGAAGGAGGAGGAAGCTAAGCTGGAAGGGAAGGCAGG  
TGATACAGGAAAATTAATATGAGCTTTGCTATAGTGACCCTTTTCCCTTCACTCCTTGAGCTGTGGCCTT  
AAGAAGTGTGTACCAATGGGAGGCACTTGCATAGTAAGTGTTTCAATTTGCTGAATACTTACAGAGGGCTATA  
AGTGGACAAATATGTCCAAAACACATGAAACACACACCATCAACACTTGCAGATGGTCTCCTTCAGGGAA  
CCTTTCACACTGGCTCTCCCTCACTGAGCTTTTCCCTTCTATCACCCTCCCAGTCTAGGCTCCTGGAGTC  
AGTAGTTGGAATCTCAGATGGGAAGAAACCTTAAAAGTCATCTGGTCCAGTATTTTTCCAAAGCATGTTCCA  
TGAACCTGTTTTTCCAGAAATGGTTTTCTGGTCTGGTGAGTTTAAAGAAACCTGCTTATGACGATGCTCTCC  
ATTTAGAGAATCACAAAGCTTGGCTACTCAATGAAAGCTCTGACAAGTCTCGCAGGAAAAAACTTGTCTTC  
TTTTGGCTAAGCTAGGGCTGCCCCAAAGTTTCTCATGGAGTCCCTTTCTTGCACATAATAATAGCATCTCACA  
AACCAGTGGTCGGGGGAACCCATTACGGGAAATGCTAATCTTCTGGACCCTTCCTTCTATTTTTATAGGTGG  
AGAGGCTGTGTGGTGGTCTGGTTGGCTGCATGTAAGTAAAAACAAAGGCTTAAAAAGATAGGGGCTTCTT  
TTGCTCTTTTGTAAAGTCTGGGAATAGTCAAAGACTGGTACTGTGACTAGAAAGGCTTCTGATATGG  
TTTGGCTCTGTGTTCCCAACCAATCTCACCTTGAGTTGTAATGATCCCATATGTCAAGGGCAGGATCAG  
GTGGAGGTAATTGAATCATGAGGGCAGTTAATCCCATGCTGTTCTTGTGATAGTGAGTTCTCACAGGATCT  
GATGGTTTTATAAGGGGCTTTTCCCTTTGCTCGGCACCTCTCTCTCCTGCTGCTATGTGAAGAGGGACGT  
GTTTGCTTCTCCTTCTGTGATGATTGTAAGTTTCTCGAGGCCCTCCCAAGCCATGTAGAAGTGTGAGTCAAT  
TAAACCTCTTTCTTTTATAAATTGCCAGTTCCGGTATGTTCTTGTAGCAGCCTGAGAACGGCACTAATATA  
GCTTCTCTGCCCAGTGTGAAGAAGAGCAGAGAGGCAGGGCTGGGAGGAGAACAAGGCACCTGCCAAGGAGA  
TGGGGAGGCTGGGCTGGCTTTCCCTCTCCTCCAGGCTCACCTGGGAAGCCTGTGCTCTAAACTTGCTCAAA  
CATCCTGAACCCAGGAGGAGTTGGTGGTACACAAATTCAATTCAATTCAACCCACATCCAGACTGTACTC  
AAGCAGCAGTCTTTTGGCCAGTCATCTCAACCTCATCTTCTCCCTCTACTCCCAAACCATGCTCTCTC  
TGCTCCAGAGCCAGGGGCCCTCTTTGCTGTTTCCAAAACATCCATGGCAGTCTCCACTTCAGGGCCTTTACA  
TGTGCTGTTCCTCTGCCTTTAGTACCCAAACAGAATGGCTTGGAGACCCAGCCCTAGTTCTTGGGGAAG  
CCCAGCCTCCTCCATCTCATATCTAAGGCCTGAGGCCTCCTGGCTGCCTCTGGCTCCCATCTTTTCTCCTG  
CAGGGTATCTCCACTGTGAAGATTGCTGTTGGCCCCATTAATTACCTGTAGGAGTCATCTTTCTGATTCTT  
TAATTTTGTCCTGTGCCACTAACCCAGGAAGTGGCTAGGATTTTGGCTGAGGGCTTGGAGTAACAGAGGAAG  
AAGAGAGCACTGCCAATCGCATGTTAGAGCTCACTGTCCAAAAGTGAATTGGCCAGTCCCCACCTTGCTG  
GCTGTGCTTCTTAGGCCCCATTATCACTCTCTTCTCATGCTGTTTCCCTTTGAGATCTTTGTTTTCCCTTC  
CCTCCAAAATGCCTGATATTTCTCAGGCAGGAGTAGTCTAACTTTCCCTCCTCACCCAAACTAGGCTTCC  
AGGCCCTTTAGCAATGCCAAAACCTCACAGGGAATATAAAATAAGCAACTCCAGGGATCCAGGAGGAAC  
CAGTGGAGACTTGGGAAGTGAATTTCTCCTTCATATATCAAGATCGTATTATTGGCAGTACTCCCTCCTT  
ATTGACCACAACATGCTCCTGGCTGAGGCTGGGCAGAGAGAGTTTGTCTCCTTCCACAGCAGGTGTGATGG  
CACCTGCTATAGGCAGTGTGTTTGGCATTGCATTTCAGAGATGCAAGTAAGGCAAGAACCCTGGCCTCA  
AGGAGCCCTGGCTCCAGGAGTGAACTTAGCCTCATGCATAAAATAAGTGGAGATGGGAGGGGGCAGGGAA  
ACCTTGGCTAATCAGAGCAGAGAAGAGCCCTTCAGGTTGGAAGGTCAAGGAGGGCTTCCTTTAGGAAATGG  
CATTTGAAGGGGCCAGATCAGATGGCTTAACCTTCGGGGACAAGCTTTGGAGCAGCTAACTTGGGTGATGTA  
GGATTTTTTTTTTTTTTAAATCTCCAGCTCTATGTCTGACAGATTTACCTAAACCAGCCTTGTTAAATC  
TCAAGCCCCATGAAACCCGTTTCTGTTATAATCTCTCTCTTATCTCTTCTTGCCTTCCTTTCCCATTC  
TCCTCCCCCAAAGGATAGGAAATCTTCAAAGAAAAAGATGTGTCACTGCAAGTATACAGCCCAAGAAATGG  
GCCAGATAAAATTATTAACACACGAAAAGACAGTGAGTTATGGGGTGGGAAGCCCTCGGAGGCCGAATGG  
CCACCCAGGTAGACAGCATGCTGGTGGCCCCCTGGAGACCCCTTCTCAGAGACCTGGACAGACTAACATT  
TTGCCACAAGGCCCATCTCTTGGGTTCTCACCCAGATCTGGGTAAGGGTATCATGATTCCAATAGCAGTG  
AAGTCCCAGGCGCTGTGGGCTGGGAGGCACAGGGTGAAGGTGGAGGGGGGCTTTGTGTCTGGGCTGGA  
CATTTGGGATTTTACTCCCCGCAAGACTCAAACCTGACAGTTTATGTTCTTACCTTTACCTCTTTTT  
GAACTGTAAAAAGAAATTCCCAAGGGGAAGAGGGGATACTTTTTTCTCATGGAAGAAGAACCCAGGACCG  
GTTTAAGAAAGTAACCAACTTTCTAAGCACTGTGAGAAAGGATGCTCCAAGTTTTGCTTTGATTTAGAGGC  
ACCCTGGTACCAGCAGGGAGGGGTGAGAAAGGCAACAGGAATTCCAGACGAATTCCATTGCCTTTTGAGG

FIG. 7-1



GGTCTGAAAGAGGGTGCCCACTCCGACTCAGATGCTCAAACCCCTGGCTCCCTCTTACACCTGACCCCCGC  
CGTTCTGCCCCACTTTTTCATGTTCCACAGCTCAGGGGTTCTTACTTCAGCATTACCCACATTTGATGCT  
GGATCATTTGTTCTGGTAGGGTGGGGGGGCTGCCTTATGCATTGTGGTATGTGTAGCAGCAACCCTGGCCT  
CTACCCACTAGATACCTCCAGGCATTACCAAGTGTCCCTTAGAGGGCAAATTTGTTGTGTGTCAGGTCCTT  
ATGGGATGGAAAGAAAGAAAAATGGCCTGTTACCCCTGGTGTAACTTACTACACTGTTTACTAATTCATCA  
TTTATTGTTTCTTGCCCTATCTTCCCCCTAGGTGAGTGGGAGTTCGATGAGAGTGGCAGTTGTCTATTTTGT  
TCACCGATGTATCTTAGGTGACTAAAACAATGGTTGTGCATGGCTGGCCCTTCATATTTGTTTCCAGATG  
GAAGACTCTCTTTCTAGTGGTGGAAACATTAGTTTGTGACTGTGTTGGGACAACCTGATGTAGTGAAAACAA  
GCCTGGGCAATGAAATCAACAGATTGGAGTTCAGTTCCTAATTGGGTCATGGATGAACTTTGTGACCTTGG  
GCAAGTGAGTTCACCTCTCTGAGTTGAATAGGTTCCCTCCTTTCTAGAACAAGTATGAGTCTGCATCAGAG  
AGTGGTTGCGAGGGCTACACATGATGGAGGATGAGGACTGGCACATCAGAAGTACTGAATGAAGAATTGTA  
ACATAAAAATGACAACAGTAATATATTTTTGTGGTTTCAGCACTCTTCAAATGAAACCACCTGGCCAACAG  
GATTTTAGTGTAACCTGCTTATAACATTAGCCTTCGTTTCCACCAAAAAGGGTGTAAAAAAGGAAGCTTGG  
AACATGAAAGTAAGACACTTGGATGAAGAGATTTATGACTCTGGGGGGCTGTGAATTCCTAATGTCTTTT  
GAGACATGTAGATCTTCCAGAGCGATGCTGCCCAATGCAGTAGCCACTAGCCAAGTGCAAATGGTCACTTG  
CAATATGGCTAGTCTTTGAGATGTGTTTTAAGTGTAATAACACACTGAATTTTAAAGACTTAGCGCAATA  
CAAAGAATGTAAATATCTCATTATATCTTGAAATTATACATATTTTGGATATATGGTGTCCCTTGGTGTC  
TTTGGGGACTGGTTCCAGGATCCTAGAGGATACCCAAATCCCAGATGTCAAGTCCGCTATATAAAATGTC  
CTGTAGTATTTGCATATAACCTACACACATCCTCTGAATACTTTAAATCATCTCTAGATTCCTTGTAATT  
CCTAATACAATGTAAATGTTATGTAAATAGTTGTTATACATATATTAATAAGTTTTTTATTCTTTATTTTGT  
CTGTATTATTCTTTTTGCATATTTTCAGTCCACAGATGGTTGATGCCACAGATGTGGAACCTGTGAATAAG  
GAGGGCTGACTGTATTGAGTTAAGCGAAATATATTATTAATATTTTCATCTATTTCTTTTTACTTCTAAAAG  
ATGTGGCGACAAGAAAATTTAAAATTACAAATGTGGCCACATTATATTTCTATTGGGCAGTGCTGCTCTA  
GAGAGTCGGCAAAAAGGGCAGAATGGAGCCTCCATTATACAGATCACAAAAGTGGACACAGGTAATTCACT  
CCAAAGGTCGGGGCTGGTCTCACTCTGAGCTGCGGGTTTTCTTTTCCACGCCAGAGCTGCCTGGTGCCAG  
GACGAGCGTAACACGGACCCACAGTGTCCCCAGAAGGGGGCAGGCGTTCTGAGAGCCACAAAGGTGGGGTG  
GAATCCCTTGATGTGACCGCCACCATCCCCCTCCCCCGCGCGACCTCCCCGCAGAGACCTCCCCAGACA  
AAACAACAACCCCTTGGGTCTGGCGAAGTGCAGCGGGGAGCGGAAACCAAGGAAGATCAAAGACTCAGCG  
GTTACCCCTTCCGGGCCGCGCAGTTTGGCAGCGCGCCCCGACCCGGGCGGGCACCCACGGGCCCCCGGAC  
GAGGAGATCCAGAGACTGGCTGATAACGGGGCGCTTGGACATTTGTCGCTGCCTGGAGAGGGCTGGGCT  
CACACTGGCCCCGGGTGCGCTGGGGGCTCCTCCTGGACTCCCCAAATAAGAAACTAGAGGAGTGCAGTGGT  
GGGGGGCGGGTCACGGGGCGGGTAATGAACACTTTCTGCAGAAGGTAGGTCTGTTGGAAGACTGGGAAAAGG  
CAGCGCTGCCGAAGCTTGCACCTGAGCAGCTAAGGTCTCCGCTCCCGACCTCAGTTTCCCCACCTGTAAAT  
TGGAGCCGCCGAGTCCCGCCCTGCCCGTTTAGAGAGAACGTGGAGCGGAGGGAAGTGACAGTACAGTTAGC  
GATGGCCGGGCTGTCTGTCTCCAATACGCCTCCTGGACAAGCCGCCCGCCGGTCCGACGCCCTGGAGCT  
CGCCCCCGGCCAGACCGGGCAGGAGCGCGGACTGTGTCCCGCCCCCTCCCGTCAGCGCCCCGCCCTC  
GTCCCCGCCCATGCCCGCCTCCGGCCCCGCCCGCCGCAACCAGCCTTGCTTTGATGCGCCGACCCGG  
CCAATGGGCGCGCGGGGAGGCGCGGGCCGCGGCGGGCTGGGGGCTCGGCGCTCCCGGGCGTC

EXON1: 5' UTR

AGTCGGGCGCGGGCAGGGCGGCAGGAGCGCGTCCCGGCGCCGCTCGGGCTCCGCTCGGCTCGGGGGCTG  
CTTCGGGAGGAGAAGAGCCAAGGGAGGCGCCAGGCCCGCGGGCCGGCG

EXON2: 5' UTR

CATGGCTTAGGGACGCTCCCGGCCGCGCATCCCCAGC

EXON2: CODING

ATGGGGAAACTTCACTCCAAGCCG

EXON3: CODING

GCCGCGGTGTGCAAGCGCAGGGAGAGCCCCGGAAG

EXON4: CODING

FIG. 7-2





GTGACAGCTTCGCCGTGAGCGCTGCCTGGGCTCGGAAGGGCATCGAGGAGTGGATCGGGAGACAGCGCTGC  
CCGGGCGGTGTCTCGGGACCCCGACAGCTGCGGTTGGCGGGCACCATAGGCCGAAGCACCCGG

EXON5: CODING

GAGCTCGTGGGCGACGTGTTGAGAGACACGCTCAGCGAGGAAGAGGAGGACGACTTTCGGCTGGAAG

EXON6: CODING

TGGCCCTGCCTCCTGAGAAGACTGACGGGCTGGGCAGCGGAGATGAGAAGAAGATGGAGAGAGTGAGCGAA  
CCCTGCCAGGCTCCAAGAAGCAGCTGAAGTTTGAA

EXON7: CODING

GAGCTCCAGTGCGACGTGTCCATGGAGGAGGACAGCCGGCAGGAGTGGACCTTCACCCTGTATGACTTTGA  
CAACAACGGCAAGGTCACCCGAGAG

EXON8: CODING

GACATCACCAGCTTGCTGCACACCATCTATGAGGTGGTGGACTCCTCTGTCAACCACTCCCCAACATCCAG  
CAAGATGCTGCGGGTAAAGCTCACCGTGGCCCCCGATGGCAGCCAGAGCAAGAGGAGCGTCCTTGTCAATC  
AGGCTG

EXON9: CODING

ACCTGCAGAGCGCAAGGCCCCGAGCAGAGACCAAGCCCACTGAGGACCTGCGGAGCTGGGAGAAGAAGCAG  
CGAGCCCCGCTCAG

EXON10: CODING

GTTCCAGGGTGACAGCCGCTGGAGCAGTCTGGCTGCTACCACCATTCGCTAGATGAGAACATCGAGAGGA  
GAAACCACTACTTAGATCTCGCCGGGATAGAAAACCTACACGTCCCAATTTGGGCCTG

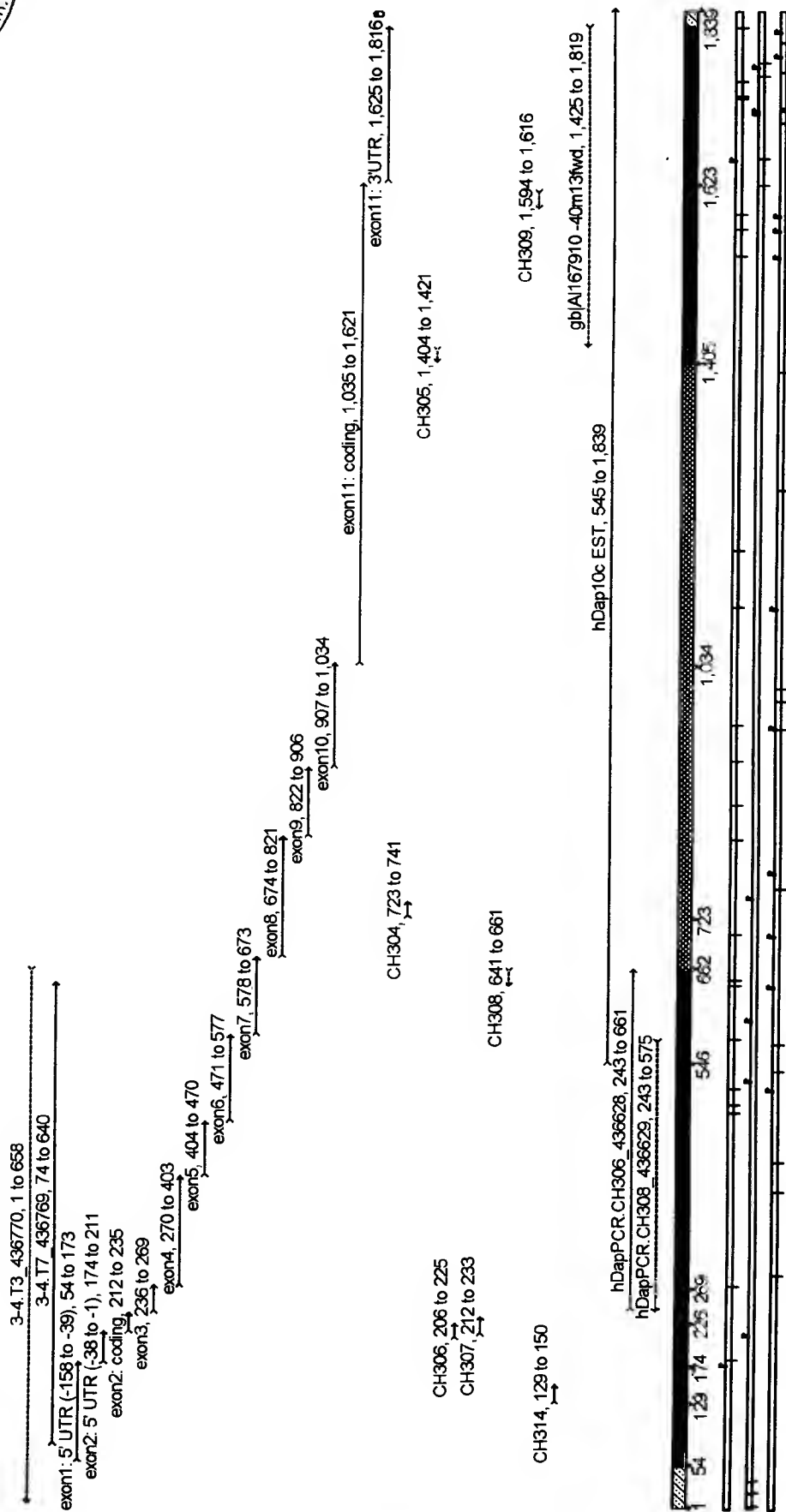
EXON11: CODING

GCTCCCCCTCCGTGGCCCAGAAGTCAGAACTGCCCCCGCACCTCCAATCCCACTCGATCTCGCTCCCAT  
GAGCCGGAAGCCATCCACATCCCACACCGAAAGCCCCAAGGCGTGGACCCGGCCTCCTTCCACTTCCTTGA  
CACCCCAATCGCCAAGGTCTCAGAGCTCCAGCAACGGCTCCGGGGCACCCAGGACGGGAGCAAGCACTTTG  
TGAGGTCCCCAAGGCCCAGGGCAAGAGTGTGGGTGTGGGCCACGTGGCCAGAGGGGCAAGAAACAAGCCC  
CCTCTGGGACCCGCCATCCCTGCGGTGTCCCCCTCCGCCCACCTGGCTGCCAGCCCGGCCCTCCTCCCCTC  
CCTAGCCCCCTCGGGCACAAGAAGCACAAGCACCGAGCCAAGGAGAGCCAGCAGGGCTGCCGGGGCCTGC  
AGGCACCACTGGCCTCAGGTGGCCCTGTCTTGGGGCGGGAGCACCTGCGGGAGCTGCCCGCCTTGGTGGTG  
TATGAGAGCCAGGCCGGGCAGCCGCTCCAGAGACATGAGCACCAACCACCATGAACATCACCACCATTA  
CCACCACTTCTACCAGACATAG

EXON11: 3'UTR

AGCCCCCTCCCCAGGGCCCCACCCTGCCATATGAAGGACCCACCCCCGACACCACAAGGCATTATTATTCT  
ATTAATTATTGTTATTATGATGATTATTGTTATTAATAATTATTGTTACTCCACTAATATTTAGCTAGCCT  
ACATGTAGAAGATCTATGGAAACACAGAATAAATTTTATTTATATGTTAAAAAAAAAAAAAAAAAAAAA  
AA

FIG. 7-3





Wnt/ $\beta$ -catenin Pathway Induces Genes Which Promote Cell Proliferation

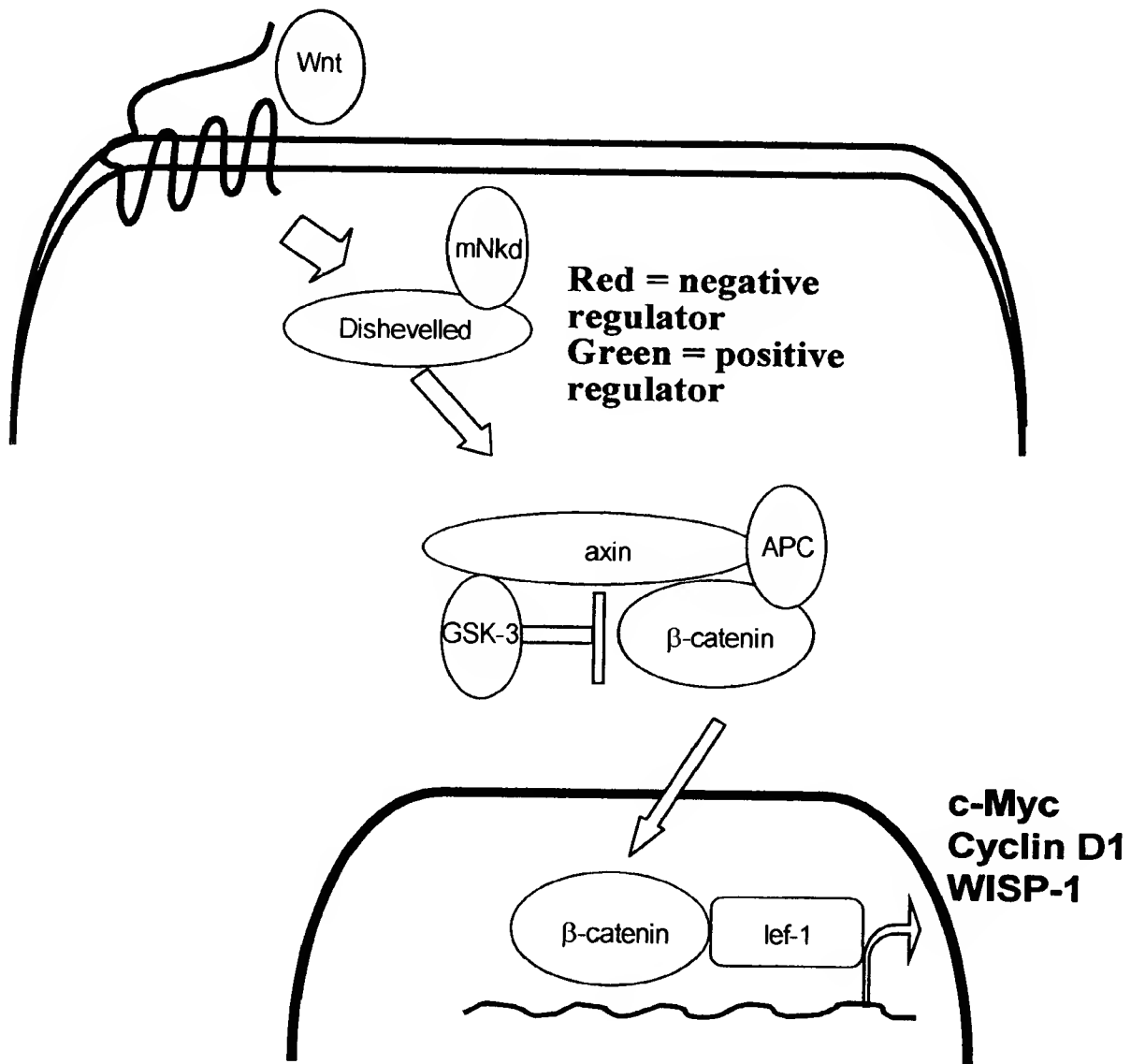
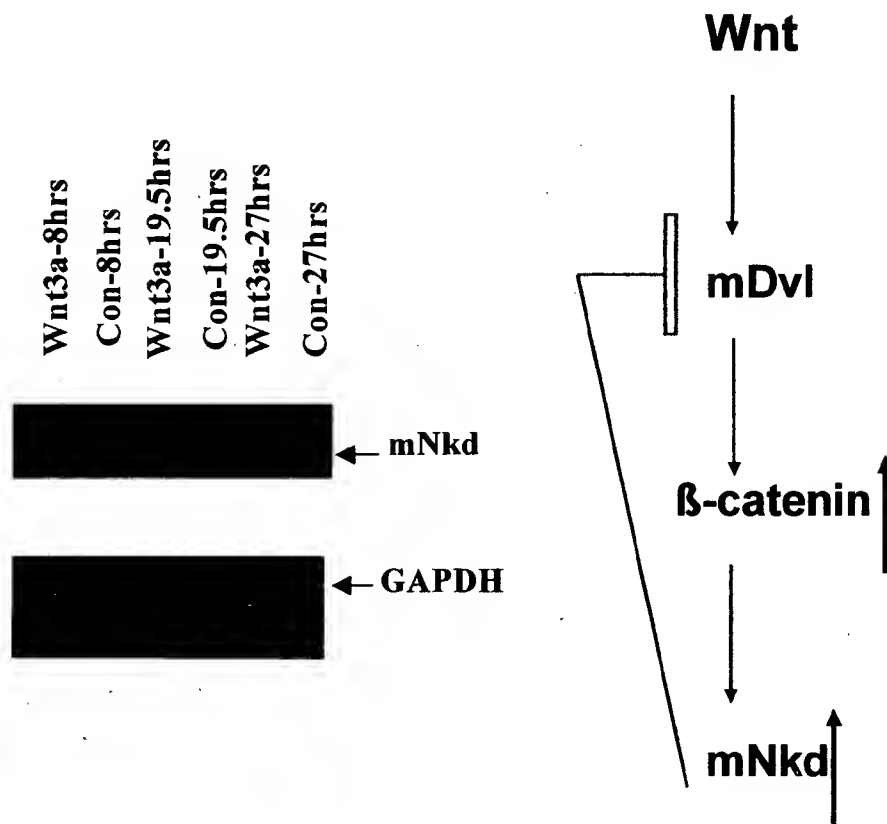


FIG. 9

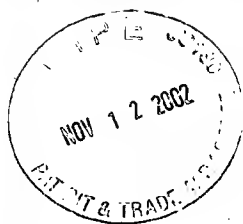


# mNkd mRNA Is Induced by Wnt Ligand

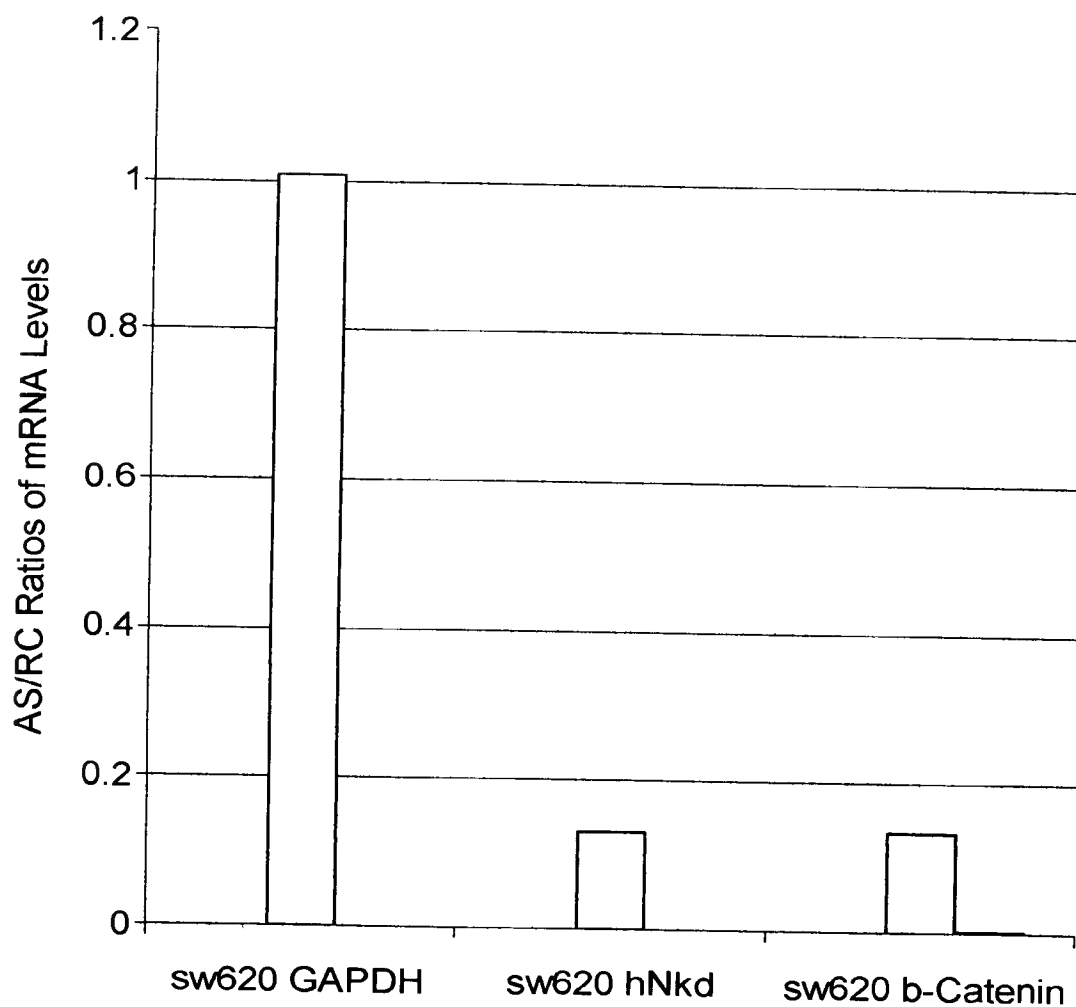


mNkd may be a part of the negative feed back loop of the Wnt/ $\beta$ -catenin pathway

FIG. 10



Ratios of hNkd and  $\beta$ -Catenin mRNA  
Levels in SW620 Cells Treated with  
 $\beta$ -Catenin AS/RC Oligos

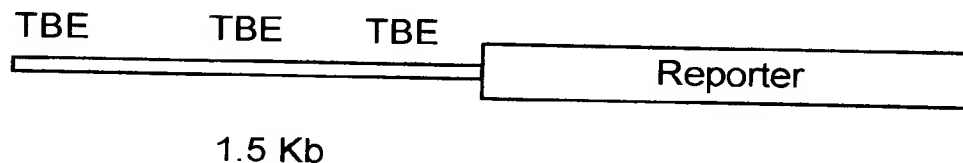


**FIG. 11**



Using hNkd Promoter---Reporter Expression  
Construct to Screen for Small Molecule  
Inhibitors that Down Regulate the Expression  
of the Reporter

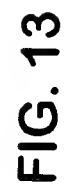
Our Strategy:



TBE: TCF binding Element (CTTTGA/TA/T)

**FIG. 12**

A circular postmark from Pittsburgh, PA, dated November 12, 2002. The text "PITTSBURGH, PA" is curved along the bottom, "NOV 12 2002" is in the center, and "JWV" is curved along the top.



**FIG. 13**



hNkd inhibits Wnt-1 activated luciferase reporter

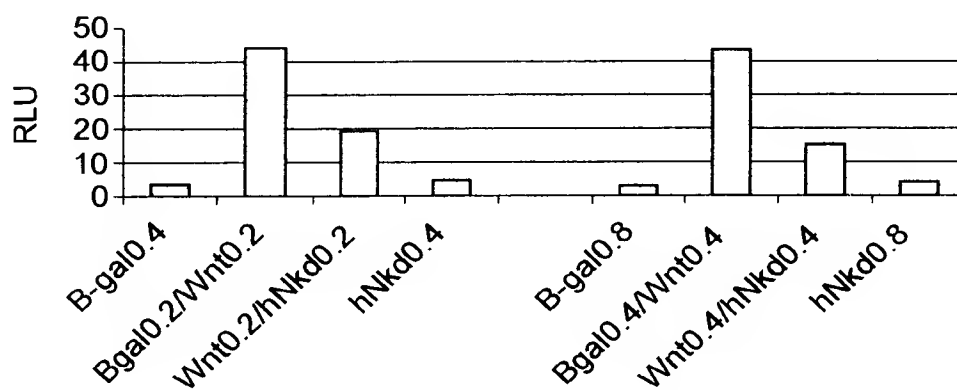


FIG. 14





Expression of hNkd in Normal Tissues

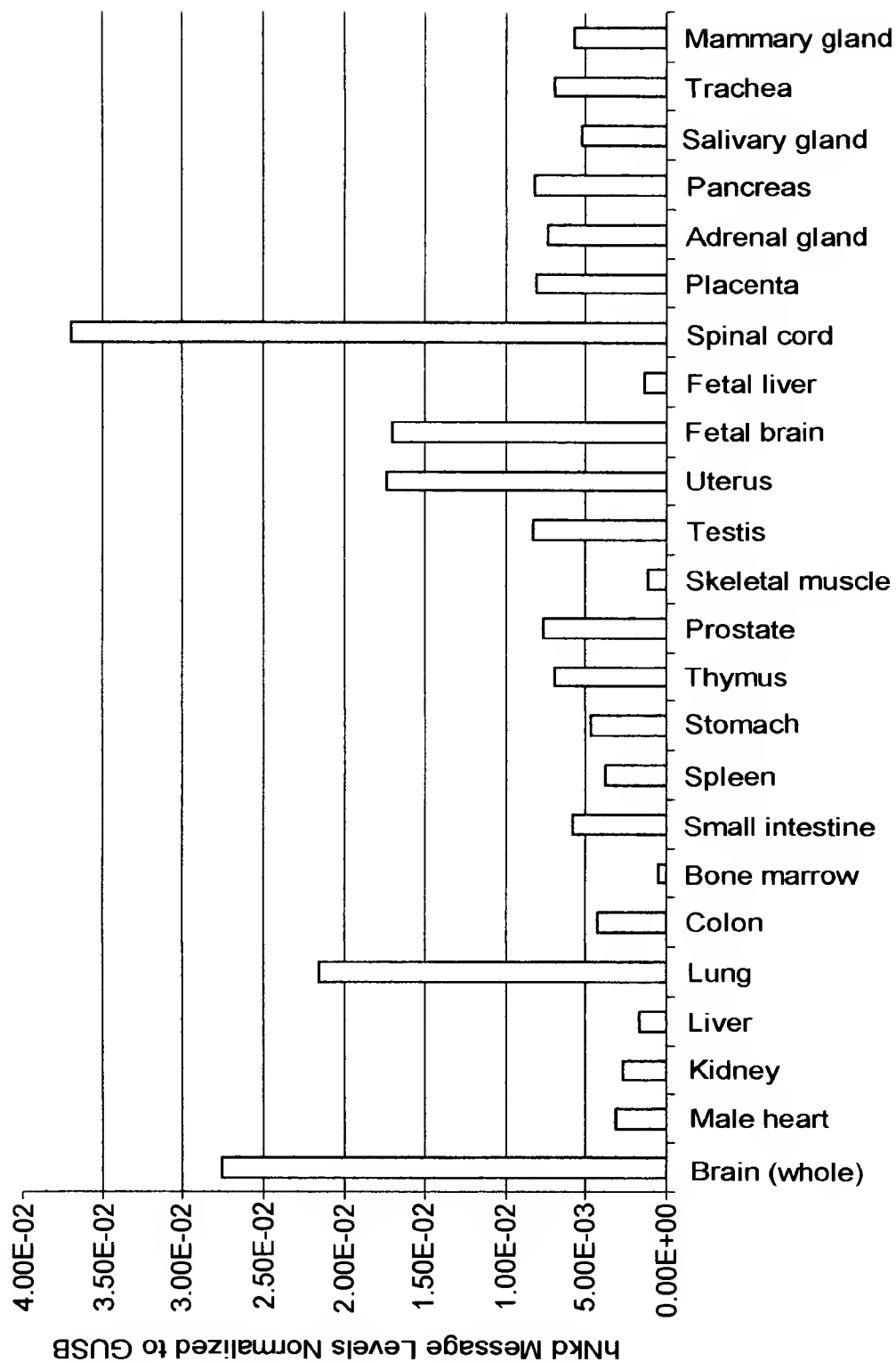


FIG. 15

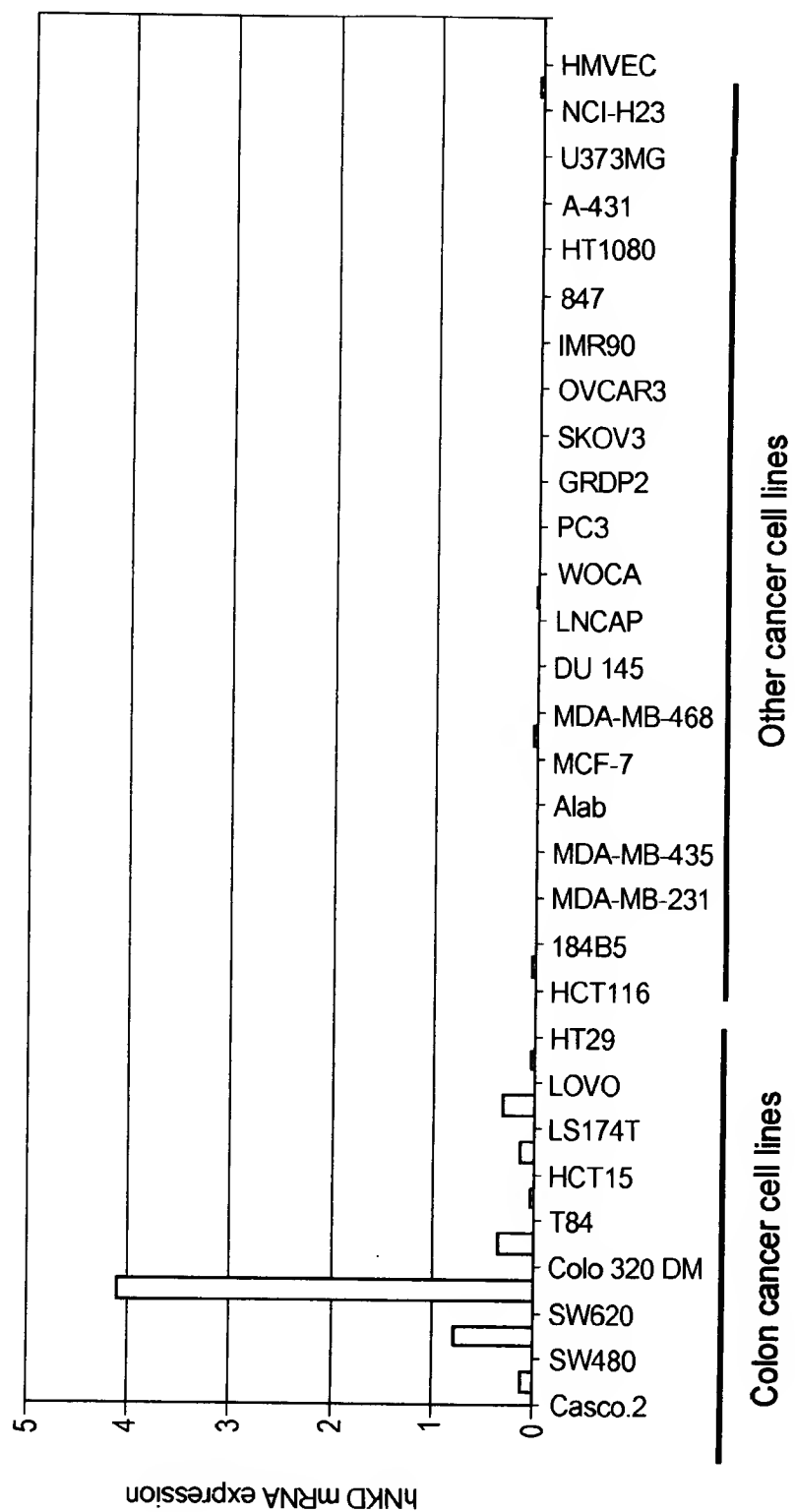


FIG. 16